



CONFORMANCE TEST REPORT FOR EN 301489-1/-6

Report No.: 60.861.9.075.02E

Client: Vtech Telecommunications Ltd.
Product: DECT Phone
Model: C1600 (FP)
Manufacturer/supplier: Vtech Telecommunications Ltd.

Date test item received: 2009/08/05
Date test campaign completed: 2009/08/17
Date of issue: 2009/08/17
Test results: **COMPLIED**

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.

Total number of pages of this test report: 41 pages

Approved by

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1 TEST REPORT CERTIFICATION

Client : Vtech Telecommunications Ltd.
Address : 23/F, Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong
Manufacturer : Vtech Telecommunications Ltd.
EUT : DECT Phone
Model No. : C1600 (FP)
Test Specifications : Emissions
EN 55022:2006(Class B)
EN 61000-3-2:2006
EN 61000-3-3:1995/A2:2005
Immunity
EN 61000-4-2:1995/A2:2001
EN 61000-4-3:2006/A1:2008
EN 61000-4-4:2004
EN 61000-4-5:2006
EN 61000-4-6: 2007
EN 61000-4-11:2004
Regulations Applied : EN 301489-1:V1.8.1
EN 301489-6:V1.3.1
EN 61000-3-2:2006
EN 61000-3-3:1995/A2:2005

Test Location: T01

The testing described in this report has been carried out to the best of our knowledge and ability, and our responsibility is limited to the exercise of reasonable care. This certification is not intended to believe the sellers from their legal and/or contractual obligations.

2 GENERAL INFORMATION

2.1 Description of EUT:

The Test Candidate is a fixed part with integrated antennas of a cordless telephone system for 3.1 kHz voice-communications on DECT Feature phone-standard. For the integrated antennas a diversity-switch is included to the equipment. This fixed part (FP) is used in combination with a portable part (PP) for connections to the analogue public switched telephone network.

2.2 Related Informations of EUT:

Power Supply : Input: AC 100~240Vac, 50/60Hz, 100mA. Output: DC 6V, 300mA

Cables dedicated for EUT:

Power Line : ☒ Nonshielded ☐ Shielded ☐ None , length: 1.8 m

Control Line : ☐ Nonshielded ☐ Shielded ☒ None , length: m

TEL. Line : ☒ Nonshielded ☐ Shielded ☐ None , length: 1.5 m

* For more detailed features, please refer to User's Manual.

2.3 Modification Record:

No modifications were required. (That mean the EUT has complied with the requirement as tested.)

3 SUMMARY OF TEST RESULTS

3.1 Emissions:

3.1.1 Conducted Emissions

■-PASS

Peak EMI value to the limit: -13.2 dB at 0.988 MHz

3.1.2 Radiated Emissions

■-PASS

Peak EMI value to the limit: -5.8 dB at 815.330 MHz

3.1.3 Harmonics Current Emissions

■-PASS

The harmonics current values were under the limits of the class A equipment of the EN 61000-3-2.

3.1.4 Voltage Fluctuations and Flicker

■-PASS

The voltage fluctuations and flicker values were under the limits of the EN 61000-3-3 requirements.

3.2 Immunity:

3.2.1 Immunity Criteria:

The results of all of the immunity tests performed on the EUT were evaluated according to the following criteria, and according to the manufacturer's specifications for the EUT:

Performance criterion for Continuous Phenomena applied to DECT Phone Transceivers (CT):

The BER of the signal as measured shall not exceed 1×10^{-3} during the test sequence. Additionally for equipment containing analogue speech circuits the speech output signal level shall be at least 35dB less than the previously recorded reference level. At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data and the communications link shall have been maintained during and after tests. Where the EUT is capable of transmission, tests shall be performed to ensure that unintentional transmission does not occur.

Performance criterion for Transient phenomena applied to DECT Phone Transceivers (TT):

At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communications link. At the conclusion of the total test comprising the series of individual exposures the EU shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communications link shall have been maintained. Where the EUT is capable of transmission, tests shall be performed to ensure that unintentional transmission does not occur.

Performance criterion for Continuous phenomena applied to DECT Phone Receive-only equipment (CR):

The primary functions shall be verified during each individual exposure in the test sequence. Additionally for equipment containing analogue speech circuits the speech output signal level shall be at least 35 dB less than the previously recorded reference level. At the conclusion of the test, the EU shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communications link shall have been maintained. This shall be verified by checking the primary functions.

Performance criterion for Transient phenomena applied to DECT Phone Receive-only equipment (TR):

At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communications link. At the conclusion of the total test comprising the series of individual exposures the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communications link shall have been maintained. This shall be verified by checking the primary functions.

3.2.2 Electrostatic Discharge:**■-PASS**

For transceivers the general performance criteria TT shall apply. For stand alone receivers the general performance criteria TR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

3.2.3 Radio Frequency Electromagnetic Field (80~1000MHz and 1400~2700MHz):**■-PASS**

For transceivers the general performance criteria CT shall apply. For stand alone receivers the general performance criteria CR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

3.2.4 Fast Transients Common Mode:**■-PASS**

For transceivers the general performance criteria TT shall apply. For stand alone receivers the general performance criteria TR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

3.2.5 Surges, Common and Differential Mode:**■-PASS**

For transceivers the general performance criteria TT shall apply. For receivers the general performance criteria TR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

3.2.6 RF Common Mode, 0.15~80MHz:**■-PASS**

For transceivers the general performance criteria CT shall apply. For stand alone receivers the general performance criteria CR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

3.2.7 Voltage Dips and Interruptions:**■-PASS**

For transceivers the general performance criteria CT shall apply. For stand alone receivers the general performance criteria CR shall apply. For ancillary equipment the pass/fail criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with receivers or transceivers in which case the corresponding performance criteria above shall apply.

4 TEST DATA & RELATED INFORMATIONS

4.1 Emissions:

4.1.1 Conducted Emissions Test:

4.1.1.1 Conducted Emissions Test Data:

A. Operating Conditions of the EUT: Talking Mode

Test Date: Aug. 12, 2009

| | | | |
|------------------------------|--|--|-------------------------|
| Test Specification | EN 55022:2006 (Class B) | | |
| Test Equipment | Calibration Date | | Recommended Recal. Date |
| EMI Test Receiver\R&S\ESCS30 | Aug. 14, 2008 | | Aug. 13, 2009 |
| LISN\Telemeter\NNB-2/16Z | Mar. 30, 2009 | | Mar. 29, 2010 |
| LISN\EMCO\37100/2M | Feb. 12, 2009 | | Feb. 11, 2010 |
| Climatic Condition | Ambient Temperature: <u>25°</u> C Relative Humidity: <u>50 %</u> RH | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Test Set-up | Table-top Equipment | | |

| Freq. (MHz) | Meter Reading (dBuV) | | | | Factor (dB) | Result (dBuV) | | | | Limit (dBuV) | | Margins (dB) |
|----------------|-------------------------|------|------------|------|----------------|------------------|------|------------|------|-----------------|---------------|-----------------|
| | Q.P. Value | | AVG. Value | | | Q.P. Value | | AVG. Value | | Q.P. Value | AVG. Value | Q.P. or AVG |
| | L1 | L2 | L1 | L2 | | L1 | L2 | L1 | L2 | | | |
| 0.158 | 36.5 | *** | ---- | ---- | 0.1 | 36.6 | *** | ---- | ---- | 65.6 | 55.6 | -29.0 |
| 0.177 | *** | 36.4 | ---- | ---- | 0.3 | *** | 36.7 | ---- | ---- | 64.6 | 54.6 | -27.9 |
| 0.197 | *** | 36.0 | ---- | ---- | 0.3 | *** | 36.3 | ---- | ---- | 63.7 | 53.7 | -27.4 |
| 0.205 | 38.3 | *** | ---- | ---- | 0.1 | 38.4 | *** | ---- | ---- | 63.4 | 53.4 | -25.0 |
| 0.244 | 33.3 | *** | ---- | ---- | 0.1 | 33.4 | *** | ---- | ---- | 62.0 | 52.0 | -28.6 |
| 1.478 | *** | 30.5 | ---- | ---- | 0.4 | *** | 30.9 | ---- | ---- | 56.0 | 46.0 | -25.1 |
| 2.009 | *** | 31.5 | ---- | ---- | 0.4 | *** | 31.9 | ---- | ---- | 56.0 | 46.0 | -24.1 |
| 5.021 | 43.0 | *** | ---- | ---- | 0.1 | 43.1 | *** | ---- | ---- | 60.0 | 50.0 | -16.9 |
| 6.009 | 41.8 | *** | ---- | ---- | 0.1 | 41.9 | *** | ---- | ---- | 60.0 | 50.0 | -18.1 |
| 6.060 | *** | 44.4 | ---- | ---- | 0.4 | *** | 44.8 | ---- | ---- | 60.0 | 50.0 | -15.2 |
| 6.705 | 41.5 | *** | ---- | ---- | 0.1 | 41.6 | *** | ---- | ---- | 60.0 | 50.0 | -18.4 |
| 28.939 | *** | 36.4 | ---- | ---- | 0.7 | *** | 37.1 | ---- | ---- | 60.0 | 50.0 | -22.9 |

Notes: 1) Place of measurement: EMC LAB. of the ETC (1F)

2) The EUT was placed 0.8m above reference ground plane.

3) Example calculation: result for 0.158 MHz: $36.5 + 0.1 = 36.6 \text{ dB } \mu\text{V}$

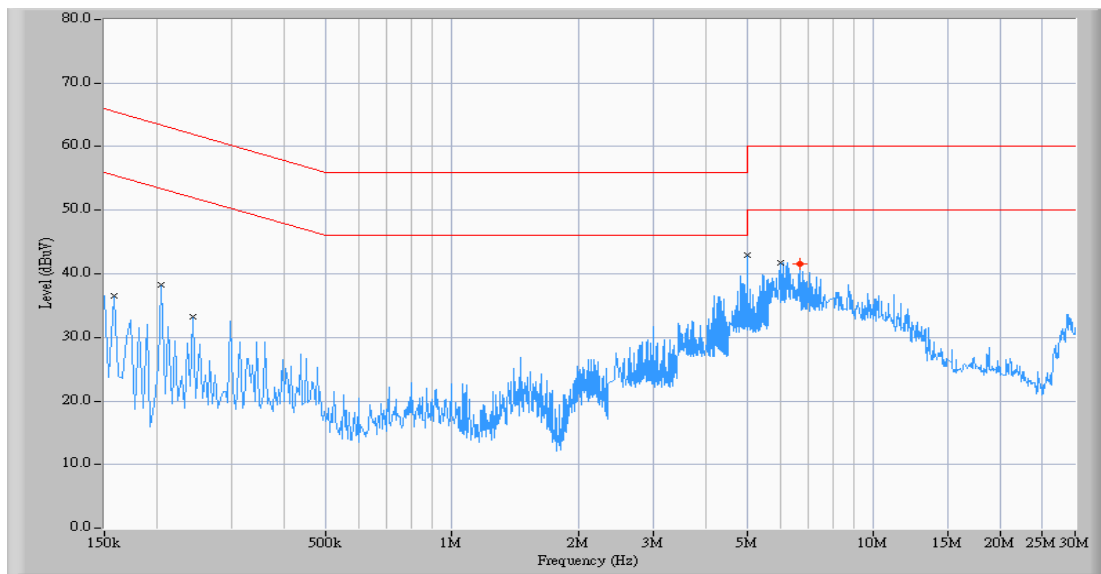
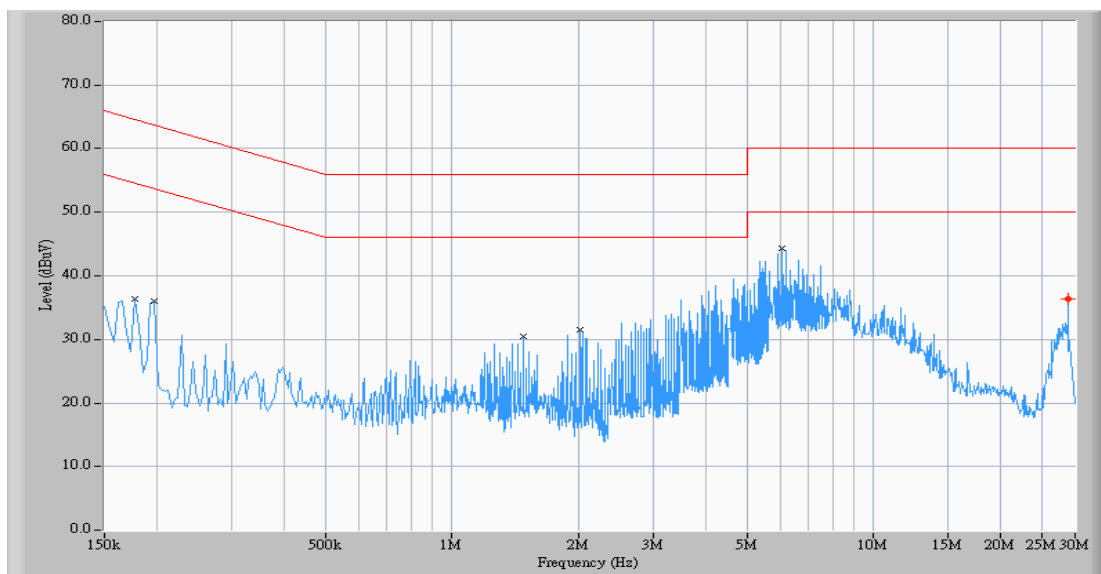
4) ① If the data table appeared symbol of "****" means the value was too low to be measured.

② If the data table appeared symbol of "----" means the Q.P. value is under the limit for AVG. so, the AVG. value doesn't need to be measured.

③ If the data table appeared symbol of “#” means the noise was low, so record the peak value.

5) The estimated measurement uncertainty of the result measurement is

$\pm 3.6, 95\%, K=2, (150 \text{ KHz}-30 \text{ MHz})$

Power Line-L1**Power Line-L2**

B. Operating Conditions of the EUT: Talking Mode

Test Date: Aug. 12, 2009

| | | | |
|---|--|--|--------------------------------|
| Test Specification | EN 55022: 2006 (Class B) | | |
| Test Equipment | Calibration Date | | Recommended Recal. Date |
| EMI Test Receiver\R&S\ESCS30 Current probe\Schaffner\SMZ11 | Aug. 14, 2008 Mar. 31, 2009 | | Aug. 13, 2009 Mar. 30, 2010 |
| Climatic Condition | Ambient Temperature: <u>25°</u> C Relative Humidity: <u>50 %</u> RH | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Test Set-up | Table-top Equipment | | |

| Freq. (MHz) | Meter Reading (dBuA) | | Factor (dB) | Result (dBuA) | | Limit (dBuA) | | Margins (dB) |
|----------------|-------------------------|------------|----------------|------------------|------------|-----------------|------------|-----------------|
| | Q.P. Value | AVG. Value | | Q.P. Value | AVG. Value | Q.P. Value | AVG. Value | Q.P. or AVG. |
| | ISN | ISN | | ISN | ISN | | | |
| 0.162 | 11.2 | ---- | 0.1 | 11.3 | ---- | 39.4 | 29.4 | -28.1 |
| 0.181 | 11.2 | ---- | 0.1 | 11.3 | ---- | 38.4 | 28.4 | -27.1 |
| 0.988 | 16.7 | ---- | 0.1 | 16.8 | ---- | 30.0 | 20.0 | -13.2 |
| 8.270 | 10.8 | ---- | 0.2 | 11.0 | ---- | 30.0 | 20.0 | -19.0 |
| 14.750 | 11.7 | ---- | 0.3 | 12.0 | ---- | 30.0 | 20.0 | -18.0 |
| 23.586 | 11.9 | ---- | 0.4 | 12.3 | ---- | 30.0 | 20.0 | -17.7 |

Notes: 1) Place of measurement: EMC LAB. of the ETC (1F)

2) The EUT was placed 0.4m above reference ground plane.

3) Example calculation: result for 0.162 MHz: $11.2 + (0.1) = 11.3 \text{ dB } \mu\text{A}$

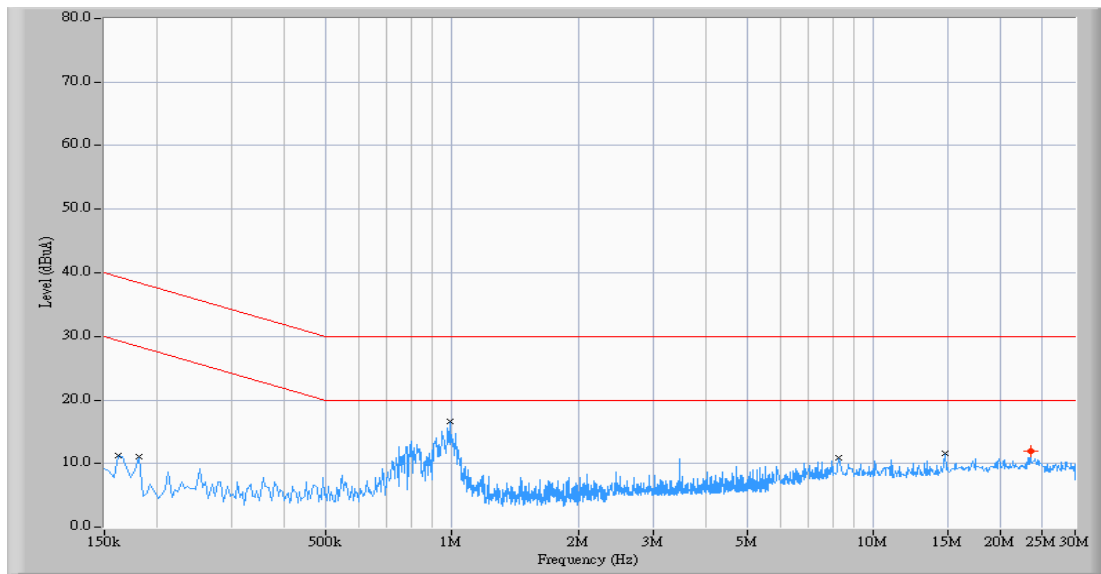
4) ① If the data table appeared symbol of "****" means the value was too low to be measured.

② If the data table appeared symbol of "----" means the Q.P. value is under the limit for AVG. so, the AVG. value doesn't need to be measured.

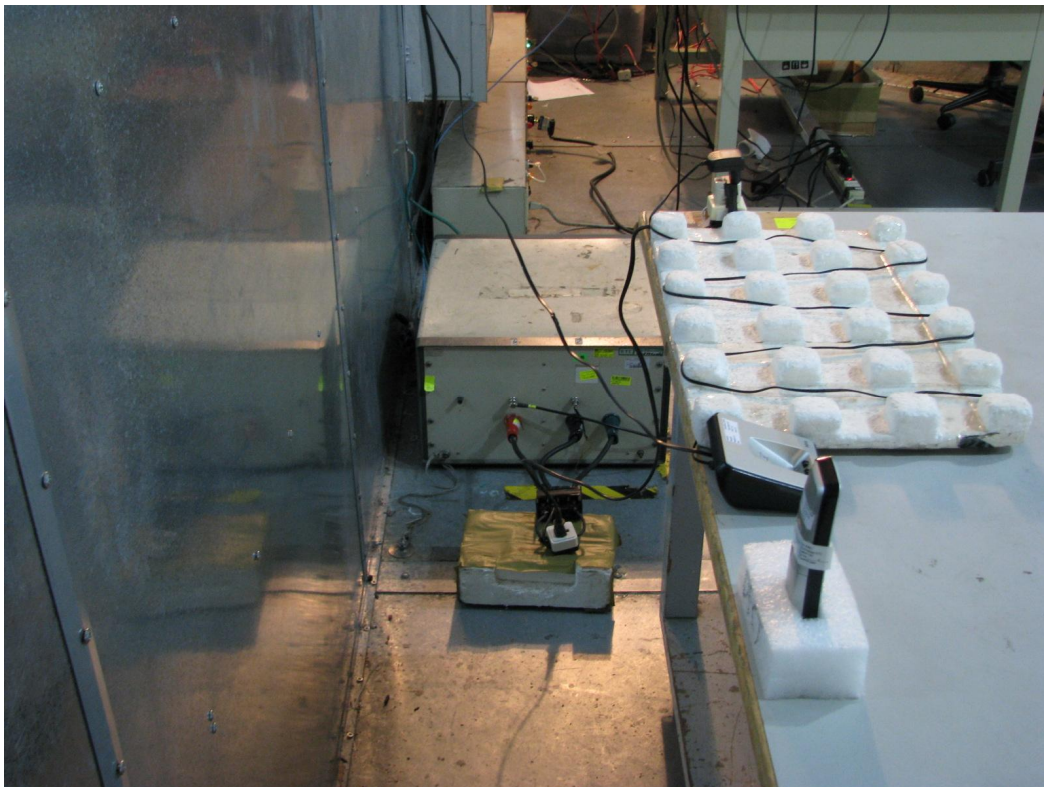
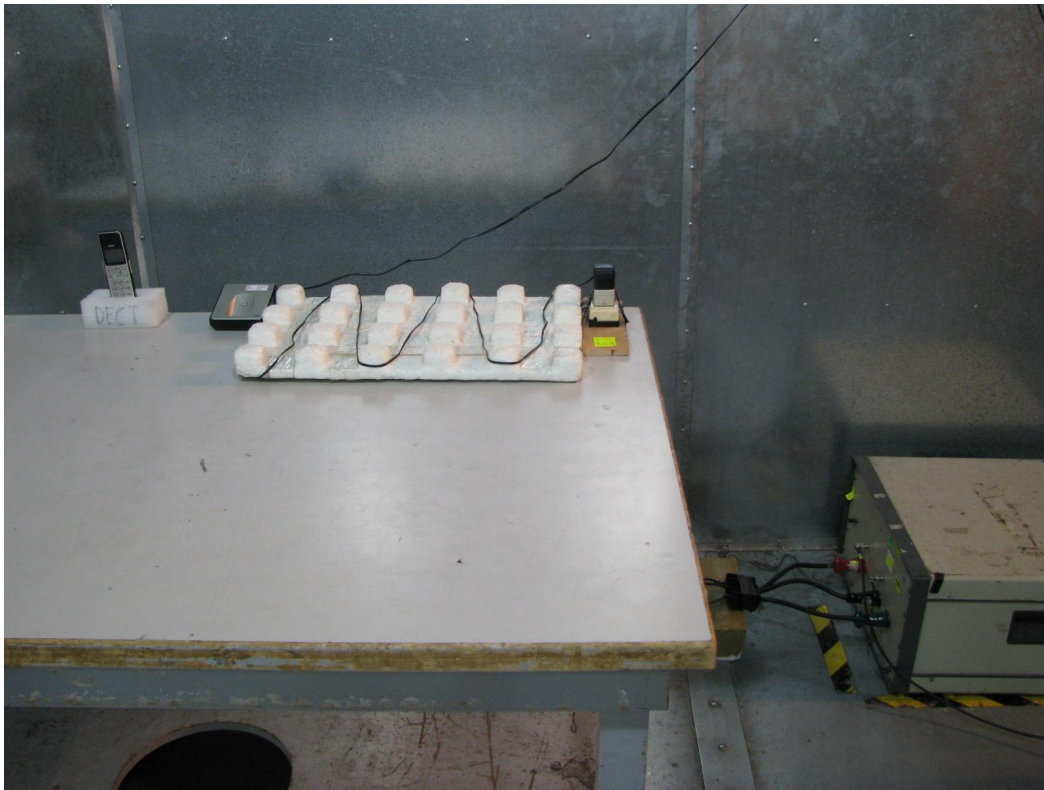
③ If the data table appeared symbol of “#” means the noise was low, so record the peak value.

5) The estimated measurement uncertainty of the result measurement is

 ± 3.6 , 95%, K=2, (150 KHz-30 MHz)

TEL Line-ISN

4.1.1.2 Conducted Emissions Test Setup Photos:



4.1.2 Radiated Emissions Test:**4.1.2.1 Radiated Emissions Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 12, 2009

| | | | |
|------------------------------|-----------------------------------|------------------|-------------------------|
| Test Specification | EN 55022:2006 (Class B) | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| EMI Test Receiver\R&S\ESCS30 | | Nov. 03, 2008 | Nov. 02, 2009 |
| Ant.- LogBiconi\EMCO\3142 | | May 12, 2009 | May 11, 2010 |
| Spectrum\R&S\FSU | | Nov. 25, 2008 | Nov. 24, 2009 |
| Horn Ant.\EMCO\3115 | | Jun. 12, 2009 | Jun. 11, 2010 |
| Preamp\HP\8449B | | Oct. 09, 2008 | Oct. 08, 2009 |
| Climatic Condition | Ambient Temperature: <u>26°</u> C | | |

Measurement Distance: 10 m (30MHz~1GHz)

| Emission Frequency (MHz) | Meter Reading (dBuV) | | CORR'd Factor (dB/m) | Results (dBuV/m) | | Limit (dBuV/m) | Margins (dB) |
|--------------------------|----------------------|-------|----------------------|------------------|-------|----------------|--------------|
| | HOR. | VERT. | | HOR. | VERT. | | |
| 30.000 | *** | 4.2 | 18.6 | *** | 22.8 | 30.0 | -7.2 |
| 37.775 | 2.5 | *** | 18.6 | 21.1 | *** | 30.0 | -8.9 |
| 74.709 | 14.4 | 13.1 | 8.1 | 22.5 | 21.2 | 30.0 | -7.5 |
| 125.250 | 13.5 | 14.0 | 9.4 | 22.9 | 23.4 | 30.0 | -6.6 |
| 224.388 | *** | 9.4 | 13.2 | *** | 22.6 | 30.0 | -7.4 |
| 288.537 | 12.7 | *** | 17.0 | 29.7 | *** | 37.0 | -7.3 |
| 533.467 | *** | 3.5 | 24.5 | *** | 28.0 | 37.0 | -9.0 |
| 537.354 | 5.5 | *** | 24.5 | 30.0 | *** | 37.0 | -7.0 |
| 653.988 | *** | 2.3 | 27.0 | *** | 29.3 | 37.0 | -7.7 |
| 815.330 | 1.6 | *** | 29.6 | 31.2 | *** | 37.0 | -5.8 |

Measurement Distance: 3m (1GHz~6GHz)

| Emission Frequency (MHz) | Meter Reading @3m (dBuV) | | | | CORR'd Factor (dB/m) | Max Results (dBuV/m) | | Limit @3m (dBuV/m) | | Margins (dB) |
|--------------------------------|-----------------------------|------|-------|------|----------------------------|-------------------------|-------|-----------------------|----|-----------------|
| | HOR. | | VERT. | | | HOR. | VERT. | PK | AV | |
| | PK | AV | PK | AV | | | | | | |
| 3796.257 | 52.1 | 33.8 | 52.3 | 33.4 | -3.2 | 49.1 | 30.6 | 74 | 54 | -23.4 |
| 5697.642 | 52.5 | 33.5 | 52.6 | 33.6 | -0.4 | 52.2 | 33.2 | 74 | 54 | -20.8 |

- Notes: 1) Place of Measurement: Measuring site of the ETC (3F)
2) Measurement Distance: 10 m (30MHz~1GHz), 3m (1GHz~6GHz)
3) Height of table on which the EUT was placed: 0.8 m
4) Height of Receiving Antenna: 1 - 4 m
5) Example Calculation: result for 30.000 MHz $4.2 + (18.6) = 22.8 \text{ dB } \mu \text{ V/m}$
6) ① If the data table appeared symbol of "****" means the value was too low to be measured.
② If the data table appeared symbol of "----" means the Q.P. value is under the limit for AVG. so, the AVG. value doesn't need to be measured.
③ If the data table appeared symbol of "#" means the noise was low, so record the peak
7) The estimated measurement uncertainty of the result measurement is $\pm 5.06, 95\%, K=2, (30 \text{ MHz}-1000 \text{ MHz})$

4.1.2.2 Radiated Emissions Test Setup Photos:



4.1.3 Harmonics Current Emissions Test:**4.1.3.1 Harmonics Current Emissions Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 11, 2009

| | | | |
|--|--|------------------|-------------------------|
| Test Specification | EN 61000-3-2: 2006 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| Power Analysis System\California Instruments\ MX45-3PI-413 (PACS-3) | | Oct. 02, 2008 | Oct. 01, 2009 |
| Climatic Condition | Ambient Temperature: <u>22°</u> C Relative Humidity: <u>53 %</u> RH | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Test Set-up | Table-top Equipment | | |

| |
|-------------------------------------|
| Test data see the next page. |
|-------------------------------------|

Current Test Result Summary (Run time)

EUT:

Test category: Class-A per Ed. 2.2 (European limits)

Test date: 2009/8/11

Start time: 上午 09:37:51

Tested by:

Test Margin: 100

End time: 上午 09:41:02

Test duration (min): 3

Data file name: CTSMXL_H-000614.cts_data

Comment:

Customer:

Test Result: Pass

Source qualification: Normal

THC(A): 0.014 I-THD(pk%): 556.400

POHC(A): 0.003

POHC Limit(A): 0.251

Highest parameter values during test:

V_RMS (Volts): 229.90

Frequency(Hz): 50.00

I_Peak (Amps): 0.122

I_RMS (Amps): 0.015

I_Fund (Amps): 0.004

Crest Factor: 8.661

Power (Watts): 0.9

Power Factor: 0.275

| Harm# | Harms(avg) | 100%Limit | %of Limit | Harms(max) | 150%Limit | %of Limit | Status |
|-------|------------|-----------|-----------|------------|-----------|-----------|--------|
| 2 | 0.004 | 1.080 | 0.4 | 0.005 | 1.620 | 0.31 | Pass |
| 3 | 0.004 | 2.300 | 0.2 | 0.004 | 3.450 | 0.12 | Pass |
| 4 | 0.004 | 0.430 | 0.9 | 0.004 | 0.645 | 0.63 | Pass |
| 5 | 0.004 | 1.140 | 0.3 | 0.004 | 1.710 | 0.25 | Pass |
| 6 | 0.004 | 0.300 | 1.2 | 0.004 | 0.450 | 0.91 | Pass |
| 7 | 0.004 | 0.770 | 0.5 | 0.004 | 1.155 | 0.32 | Pass |
| 8 | 0.003 | 0.230 | 1.4 | 0.003 | 0.345 | 0.98 | Pass |
| 9 | 0.003 | 0.400 | 0.8 | 0.003 | 0.600 | 0.54 | Pass |
| 10 | 0.003 | 0.184 | 1.6 | 0.003 | 0.276 | 1.12 | Pass |
| 11 | 0.003 | 0.330 | 0.9 | 0.003 | 0.495 | 0.60 | Pass |
| 12 | 0.003 | 0.153 | 1.8 | 0.003 | 0.230 | 1.28 | Pass |
| 13 | 0.003 | 0.210 | 1.2 | 0.003 | 0.315 | 0.85 | Pass |
| 14 | 0.002 | 0.131 | 1.8 | 0.002 | 0.197 | 1.27 | Pass |
| 15 | 0.002 | 0.150 | 1.5 | 0.002 | 0.225 | 1.06 | Pass |
| 16 | 0.002 | 0.115 | 1.8 | 0.002 | 0.173 | 1.27 | Pass |
| 17 | 0.002 | 0.132 | 1.5 | 0.002 | 0.199 | 1.04 | Pass |
| 18 | 0.002 | 0.102 | 1.8 | 0.002 | 0.153 | 1.27 | Pass |
| 19 | 0.002 | 0.118 | 1.4 | 0.002 | 0.178 | 0.99 | Pass |
| 20 | 0.002 | 0.092 | 1.7 | 0.002 | 0.138 | 1.18 | Pass |
| 21 | 0.001 | 0.107 | 1.3 | 0.002 | 0.161 | 0.94 | Pass |
| 22 | 0.001 | 0.084 | 1.6 | 0.001 | 0.125 | 1.13 | Pass |
| 23 | 0.001 | 0.098 | 1.3 | 0.001 | 0.147 | 0.89 | Pass |
| 24 | 0.001 | 0.077 | 1.5 | 0.001 | 0.115 | 1.07 | Pass |
| 25 | 0.001 | 0.090 | 1.2 | 0.001 | 0.135 | 0.84 | Pass |
| 26 | 0.001 | 0.071 | 1.4 | 0.001 | 0.106 | 0.99 | Pass |
| 27 | 0.001 | 0.083 | 1.1 | 0.001 | 0.125 | 0.79 | Pass |
| 28 | 0.001 | 0.066 | 1.3 | 0.001 | 0.099 | 0.95 | Pass |
| 29 | 0.001 | 0.078 | 1.1 | 0.001 | 0.116 | 0.77 | Pass |
| 30 | 0.001 | 0.061 | 1.3 | 0.001 | 0.092 | 0.92 | Pass |
| 31 | 0.001 | 0.073 | 1.1 | 0.001 | 0.109 | 0.79 | Pass |
| 32 | 0.001 | 0.058 | 1.2 | 0.001 | 0.086 | 0.92 | Pass |
| 33 | 0.001 | 0.068 | 1.0 | 0.001 | 0.102 | 0.79 | Pass |
| 34 | 0.001 | 0.054 | 1.2 | 0.001 | 0.081 | 0.91 | Pass |
| 35 | 0.001 | 0.064 | 1.0 | 0.001 | 0.096 | 0.77 | Pass |
| 36 | 0.001 | 0.051 | 1.2 | 0.001 | 0.077 | 0.89 | Pass |
| 37 | 0.001 | 0.061 | 1.0 | 0.001 | 0.091 | 0.71 | Pass |
| 38 | 0.001 | 0.048 | 1.2 | 0.001 | 0.073 | 0.86 | Pass |
| 39 | 0.001 | 0.058 | 0.9 | 0.001 | 0.087 | 0.70 | Pass |
| 40 | 0.000 | 0.046 | 1.0 | 0.001 | 0.069 | 0.79 | Pass |

4.1.3.2 Harmonics Current Emissions Test Setup Photos:



4.1.4 Voltage Fluctuations and Flicker Test:**4.1.4.1 Voltage Fluctuations and Flicker Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 11, 2009

| | | | |
|--|--|------------------|-------------------------|
| Test Specification | EN 61000-3-3:1995/A2:2005 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| Power Analysis System\California Instruments\ MX45-3PI-413 (PACS-3) | | Oct. 02, 2008 | Oct. 01, 2009 |
| Climatic Condition | Ambient Temperature: <u>22°</u> C Relative Humidity: <u>53 %</u> RH | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Test Set-up | Table-top Equipment | | |

| | Test Data | Limit | Pass or Fail |
|-------------|-----------|-------|--------------|
| Plt | 0.070 | 0.65 | Pass |
| Pst | 0.160 | 1.00 | Pass |
| dt | 0.00% | 3.3 % | Pass |
| dmax | 0.00% | 4.0% | Pass |
| dc | 0.00% | 3.3% | Pass |

4.1.4.2 Voltage Fluctuations and Flicker Test Setup Photos:



4.2 Immunity:

4.2.1 Electrostatic Discharge:

4.2.1.1 Electrostatic Discharge Test Data:

A. Operating Conditions of the EUT: Talking Mode

Test Date: Aug. 17, 2009

| | | | |
|-----------------------------------|---|------------------|-------------------------|
| Test Specification | EN 61000-4-2: 1995/A2:2001 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| ESD Simulator\EMC PARTNER\ESD3000 | | Jul. 02, 2009 | Jul. 01, 2010 |
| Climatic Condition | Ambient Temperature: <u>23</u> °C Relative Humidity: <u>53</u> % RH Atmospheric Pressure: <u>989</u> mbar | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Test Set-up | Table-top Equipment | | |

| Test Points | Contact Discharge (kV): Criterion | | | | | Air Discharge (kV): Criterion | | | | | Test times and voltage at each condition | |
|--------------------|--------------------------------------|--------------|--------|--------|--------|----------------------------------|--------------|--------------|---------|--------|--|----------|
| 1.EUT-VCP | ■2: <u>A</u> | ■4: <u>A</u> | □ 6: _ | □ 8: _ | □ _: _ | □ 2: _ | □ 4: _ | □ 8: _ | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 2.EUT-HCP | ■2: <u>A</u> | ■4: <u>A</u> | □ 6: _ | □ 8: _ | □ _: _ | □ 2: _ | □ 4: _ | □ 8: _ | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 3.EUT-charge point | ■2: <u>A</u> | ■4: <u>A</u> | □ 6: _ | □ 8: _ | □ _: _ | □ 2: _ | □ 4: _ | □ 8: _ | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 4.EUT-Top Side | □ 2: _ | □ 4: _ | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u> | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 5.EUT-Bottom Side | □ 2: _ | □ 4: _ | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u> | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 5.EUT-Front Side | □ 2: _ | □ 4: _ | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u> | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 6.EUT-Rear Side | □ 2: _ | □ 4: _ | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u> | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 7.EUT-Right Side | □ 2: _ | □ 4: _ | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u> | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |
| 8.EUT-Left Side | □ 2: _ | □ 4: _ | □ 6: _ | □ 8: _ | □ _: _ | ■2: <u>A</u> | ■4: <u>A</u> | ■8: <u>A</u> | □ 15: _ | □ _: _ | ■10..neg | ■10..pos |

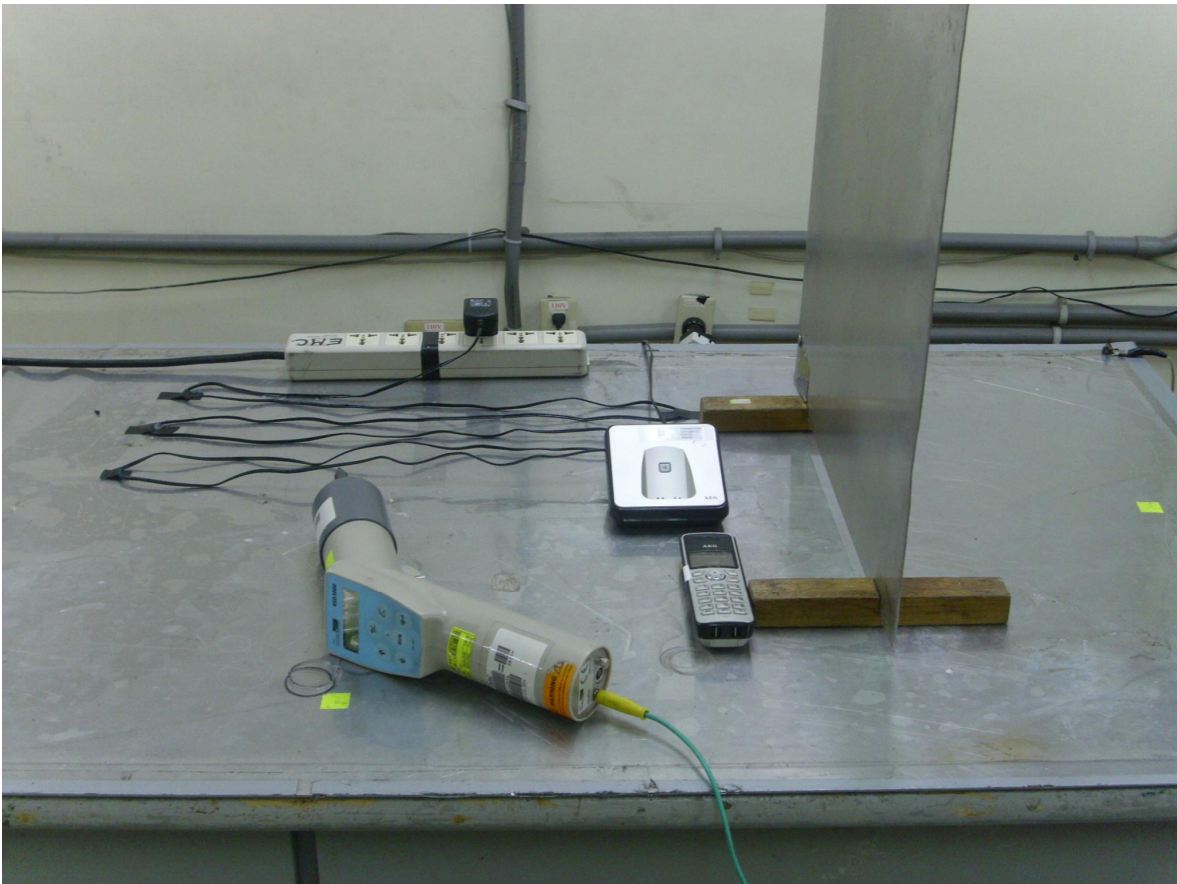
| | | | |
|---------------------|-----------------------------------|----------------|----------|
| Result: | ■ Complied □ Does not comply | | |
| Criterion Required: | <u>B</u> | Criterion Met: | <u>A</u> |

Note: “A” means the EUT operates with ■ no loss of functions.

■ no unintentional responses during and after test.

“--” means the test is not applicable.

4.2.1.2 Electrostatic Discharge Test Setup Photos:



4.2.2 Radio Frequency Electromagnetic Field (80~1000MHz and 1400~2700MHz):**4.2.2.1 Radio Frequency Electromagnetic Field Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 17, 2009

| | | | |
|---|------------------------------------|------------------|-------------------------|
| Test Specification | EN 61000-4-3:2006/A1:2008 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| Microphone\B&K\4134 | | Nov. 20, 2008 | Nov. 19, 2009 |
| Conditioning Amplifier\B&K\type 2690 | | Nov. 20, 2008 | Nov. 19, 2009 |
| Audio Analyzer\R&S\UPV | | Jan. 30, 2009 | Jan. 29, 2010 |
| IMS Integrated Measurement System\R&S\IMS | | Sep. 29, 2008 | Sep. 28, 2009 |
| RF Power Amplifier\AR\50S1G4AM1 | | Jun. 03, 2009 | Jun. 02, 2010 |
| RF Power Amplifier \AR\250W1000AM1 | | Jun. 03, 2009 | Jun. 02, 2010 |
| DECT Tester\R&S\CTS60 | | Mar. 03, 2009 | Mar. 02, 2010 |
| Climatic Condition | Ambient Temperature: <u>22</u> ° C | | |

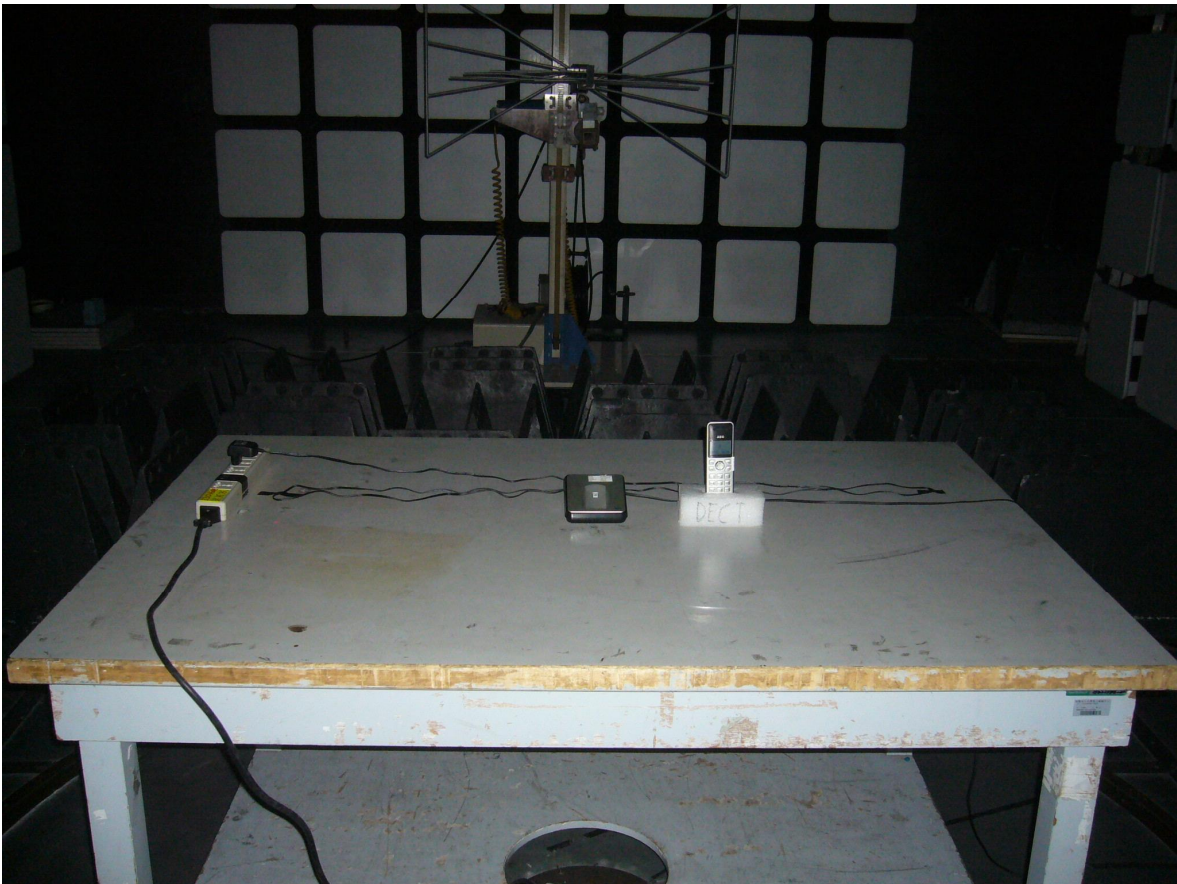
| | | |
|--|--|--------------------------|
| Frequency Range : <u>80 MHz ~ 1000 MHz</u> <u>1400 MHz ~ 2700 MHz</u> | Field Strength: <u>3</u> V/m | Modulation (AM 1kHz 80%) |
| Sweep Rate: $\leq 1.5 \times 10^{-3}$ decades/s | Step Size: ≤ 1 % of preceding frequency value | Dwell Time: <u>2.9</u> s |
| Frequency Range (MHz) | Polarization of Device | Test Result |
| 80~1000 | Vertical | A |
| 80~1000 | Horizontal | A |
| 1400~2700 | Vertical | A |
| 1400~2700 | Horizontal | A |

Note: “A” means the EUT operates with ■ BER less or equal than 1×10^{-3} during the test sequence.
 ■ the speech output signal level at least 35dB less than the previously recorded reference level.
 ■ no loss of user control functions or stored data and maintained communication link during and after the tests.
 ■ no unintentional transmission.

Remarks: Testing has been conducted at 3-meter anechoic chamber.

4.2.2.2 Radio Frequency Electromagnetic Field (80~1000MHz and 1400~2700MHz)

Test Setup Photos:



Common Information

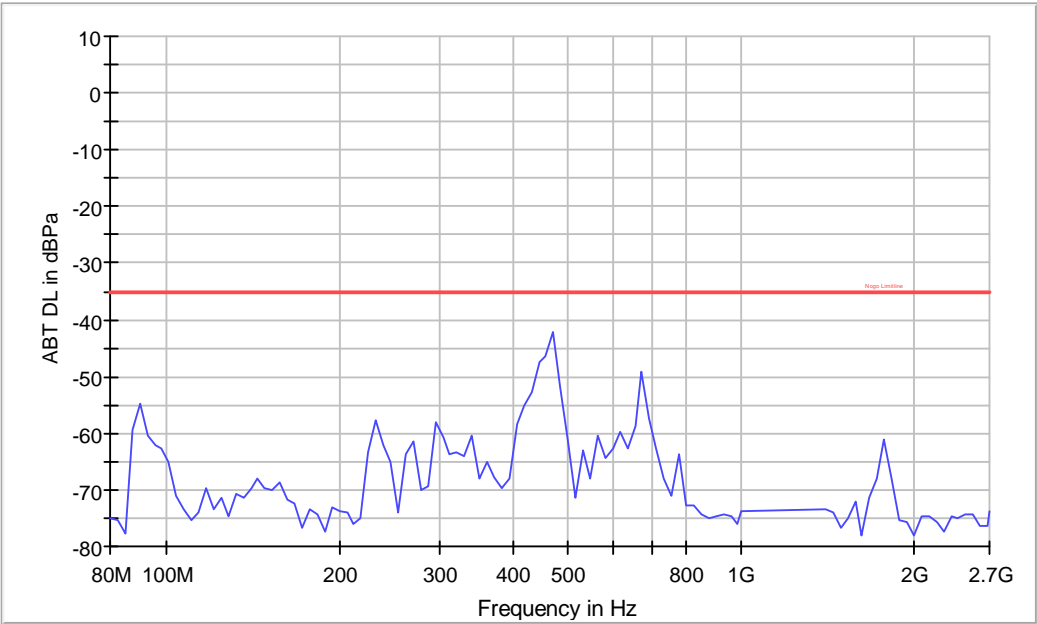
Test Description:Hor

Operating Conditions:DL

Operator Name:Eric

Comment:

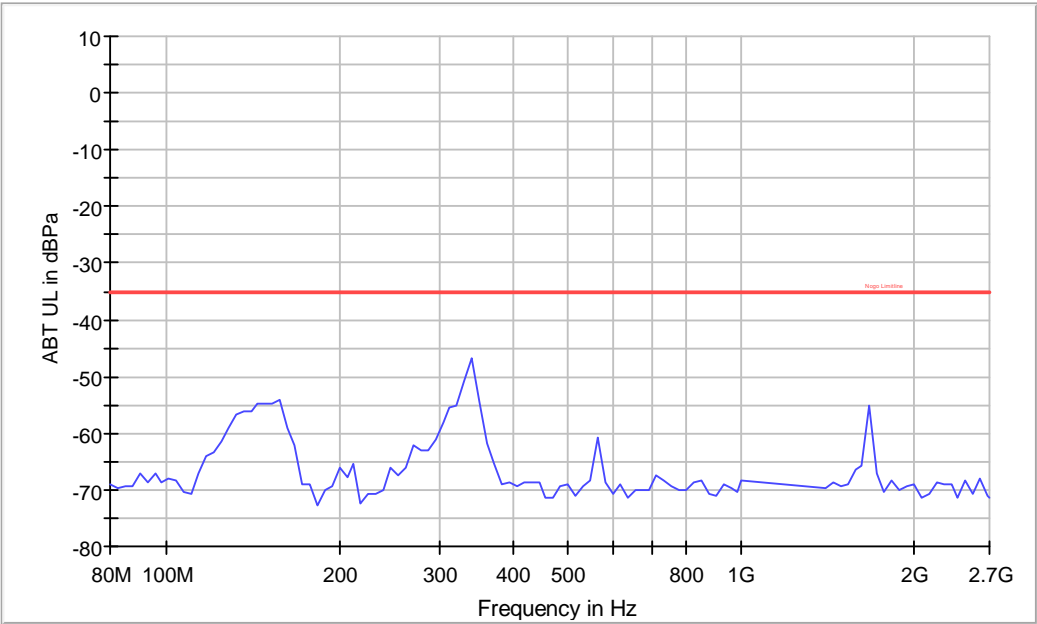
ABT DL



Common Information

Test Description: Hor
Operating Conditions: UL
Operator Name: Eric
Comment:

ABT UL



Common Information

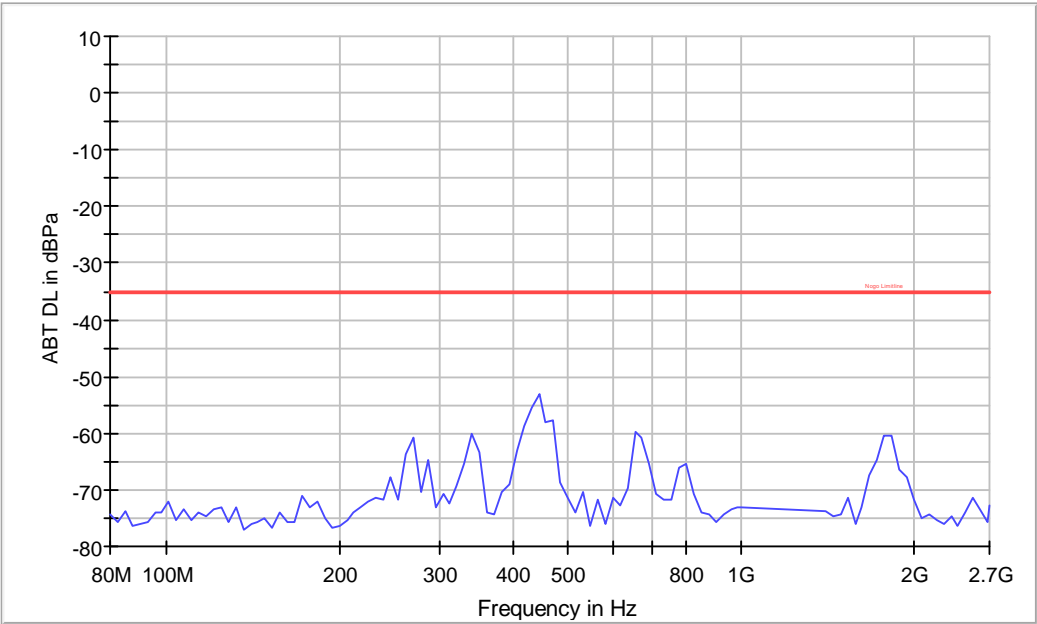
Test Description:Ver

Operating Conditions:DL

Operator Name:Eric

Comment:

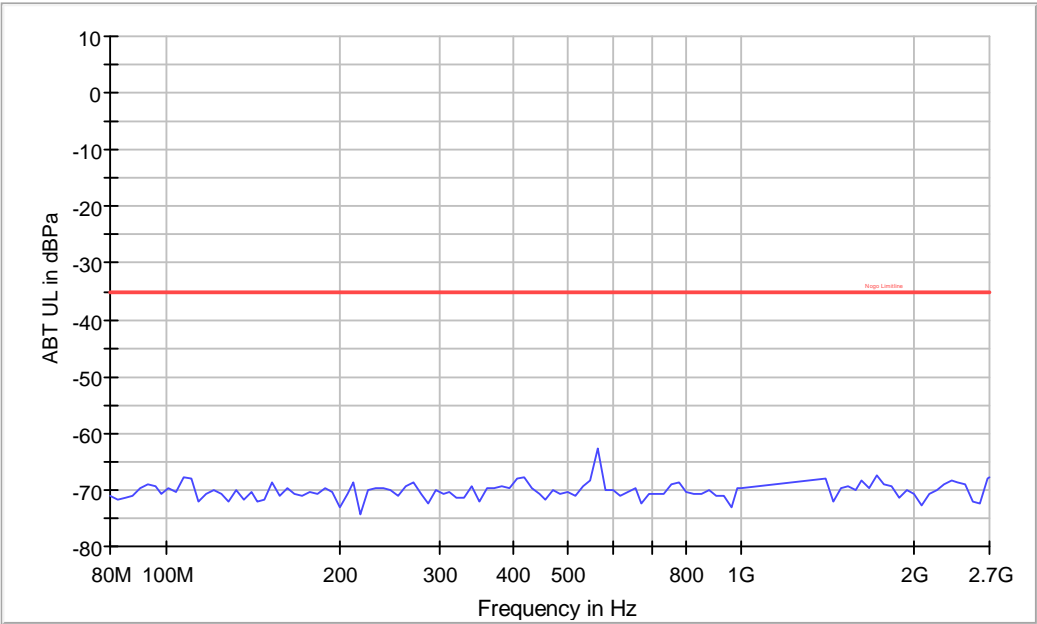
ABT DL



Common Information

| | |
|-----------------------|------|
| Test Description: | Ver |
| Operating Conditions: | UL |
| Operator Name: | Eric |
| Comment: | |

ABT UL



4.2.3 Fast Transients Common Mode:**4.2.3.1 Fast Transients Common Mode Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 11, 2009

| | | | |
|---------------------------------------|-----------------------------------|------------------|-------------------------|
| Test Specification | EN 61000-4-4:2004 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| EFT Generator/Clamp\Noiseken\FNS-AXII | | Oct. 02, 2008 | Oct. 01, 2009 |
| Climatic Condition | Ambient Temperature: <u>21</u> °C | | |

| | | | | | |
|--|---|---|----|--|----|
| Pulse: 5 /50ns Burst: 15ms /300ms | | Repetition Rate: <u>2.5kHz</u> above 2.0kV <u>5kHz</u> below and equal 2.0kV | | Test time: <u>1</u> min/each condition | |
| \Voltage\Polarity\ \Test Point\Mode\Result\ | | <u>1.0</u> kV | | <u>0.5</u> kV | |
| | | + | - | + | - |
| Power Line | L | A | A | -- | -- |
| | N | A | A | -- | -- |
| TEL Line | | -- | -- | A | A |

Note: “A” means the EUT operates with ■ no user noticeable loss of the communication Link.
■ no loss of user control functions or stored data.
■ no unintentional transmission.

“--” means the test is not applicable.

4.2.3.2 Fast Transients Common Mode Test Setup Photos:

1. Power Line



2. Tel Line



4.2.4 Surge, Common and Differential Mode:**4.2.4.1 Surge, Common and Differential Mode Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 14, 2009

| | | | |
|---|-----------------------------------|------------------|-------------------------|
| Test Specification | EN 61000-4-5: 2006 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| EMC Immunity Test System\THERMO\EMCPRO PLUS | | Oct. 24, 2008 | Oct. 23, 2009 |
| Climatic Condition | Ambient Temperature: <u>23°</u> C | | |

| | | | | | | |
|--|-------|---|--------------------------------|------------|--------------------------------------|-------------|
| Waveform: 1.2/50µs(8/20µs) | | | Repetition rate: <u>60</u> sec | | Times: <u>5</u> times/each condition | |
| \Phase \Voltage \Mode \Polarity \Result | | | 0° | 90° | 180° | 270° |
| 1.0 kV | L – N | + | A | A | A | A |
| | | – | A | A | A | A |

| | | | | | | |
|---------------------------------|--|--|--------------------------------|---|--------------------------------------|---|
| Waveform: 1.2/50µs(8/20µs) | | | Repetition rate: <u>60</u> sec | | Times: <u>5</u> times/each condition | |
| \Voltage | | | <u>0.5</u> kV | | <u>0.5</u> kV | |
| \Turn earth | | | TIP | | RING | |
| \Testing mode \Result \Polarity | | | + | – | + | – |
| TEL Line | | | A | A | A | A |

Note: “A” means the EUT operates with ☒ no user noticeable loss of the communication Link.
☒ no loss of user control functions or stored data.
☒ no unintentional transmission.

4.2.4.2 Surge, Common and Differential Mode Test Setup Photos:



4.2.5 RF Common Mode, 0.15MHz~80MHz:**4.2.5.1 RF Common Mode, 0.15MHz~80MHz Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 17, 2009

| | | | |
|---|--|------------------|-------------------------|
| Test Specification | EN 61000-4-6: 2007 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| Microphone\B&K\4134 | | Nov. 20, 2008 | Nov. 19, 2009 |
| Conditioning Amplifier\B&K\type 2690 | | Nov. 20, 2008 | Nov. 19, 2009 |
| Audio Analyzer\R&S\UPV | | Jan 30, 2009 | Jan 29, 2010 |
| IMS Integrated Measurement System\R&S\IMS | | Sep. 29, 2008 | Sep. 28, 2009 |
| Wideband RF Power Amplifier\AR\250A250AM1 | | May 27, 2009 | May 26, 2010 |
| 801-6 Coupling Network-M2\FCC\4412-025 | | Nov. 27, 2008 | Nov. 26, 2009 |
| 801-6 Coupling Network-T2\FCC\FCC-801-T2 | | Nov. 27, 2008 | Nov. 26, 2009 |
| DECT Tester\R&S\CTS60 | | Mar. 03, 2009 | Mar. 02, 2010 |
| Climatic Condition | Ambient Temperature: <u>22</u> °C Relative Humidity: <u>54</u> % RH | | |
| Power Supply System | AC Power: <u>230</u> Vac <u>50</u> Hz | | |
| Test Set-up | Table-top Equipment | | |

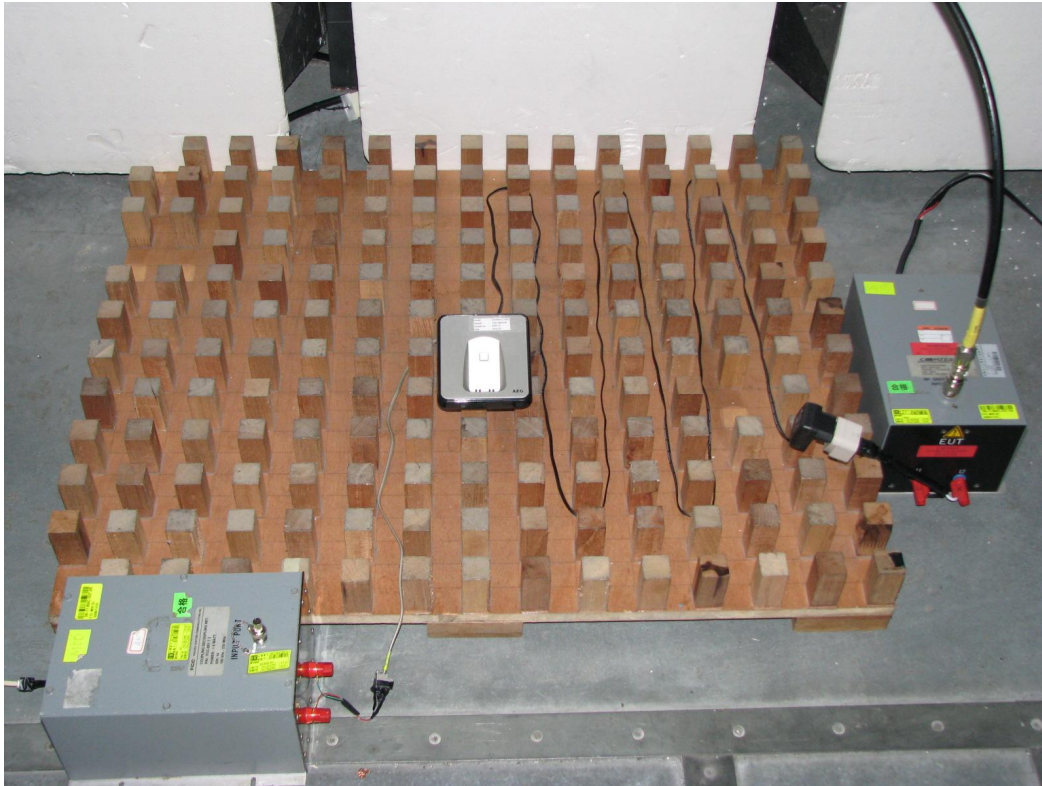
| | | | |
|--|--|--------------------------|--|
| Frequency Range: <u>0.15</u> MHz ~ <u>80</u> MHz | Test Voltage: <u>3</u> V | Modulation (AM 1kHz 80%) | |
| Sweep Rate: $\leq 1.5 \times 10^{-3}$ decades/s | Step Size: ≤ 1 % of preceding frequency value | Dwell Time: <u>2.9</u> s | |
| Frequency Range (MHz) | Tested Line | Test Result | |
| 0.15~80 | Power Line (M2) | A | |
| 0.15~80 | Tel. Line (T2) | A | |

Note: “A” means the EUT operates with

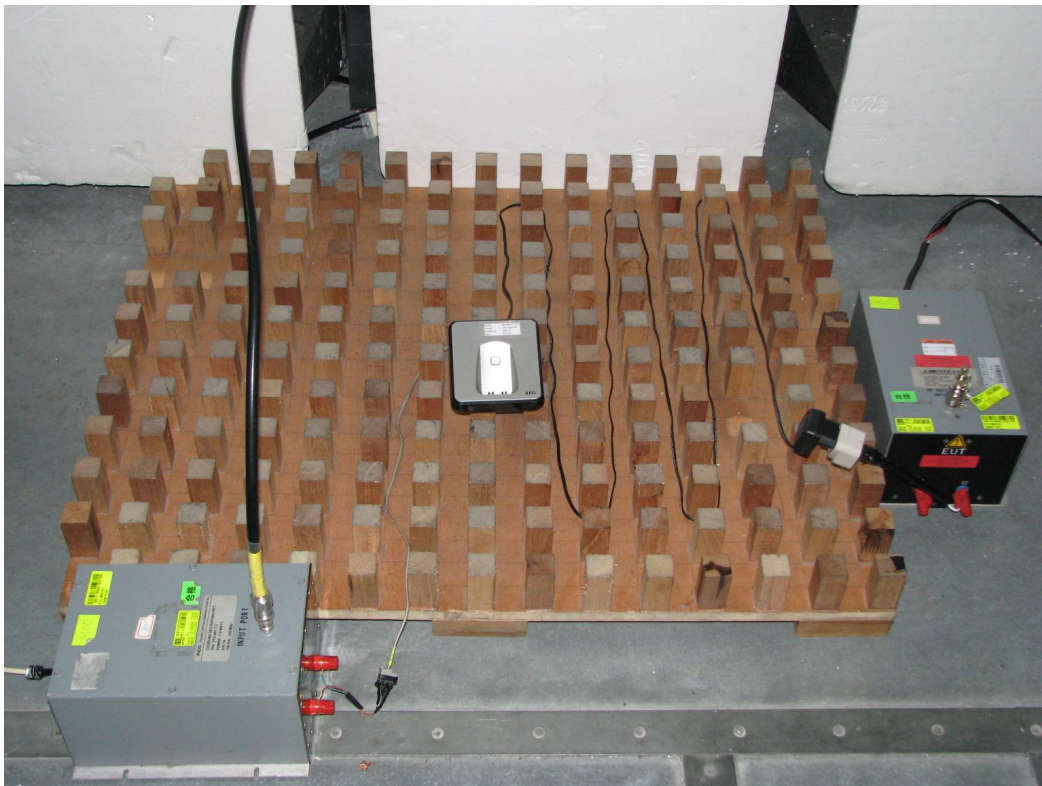
- BER less or equal than 1×10^{-3} during the test sequence.
- the speech output signal level at least 35dB less than the previously recorded reference level.
- no loss of user control functions or stored data and maintained communication link during and after the tests.
- no unintentional transmission.

4.2.5.2 RF Common Mode, 0.15MHz~80MHz Test Setup Photos:

1. Power Line



2. Tel Line



Common Information

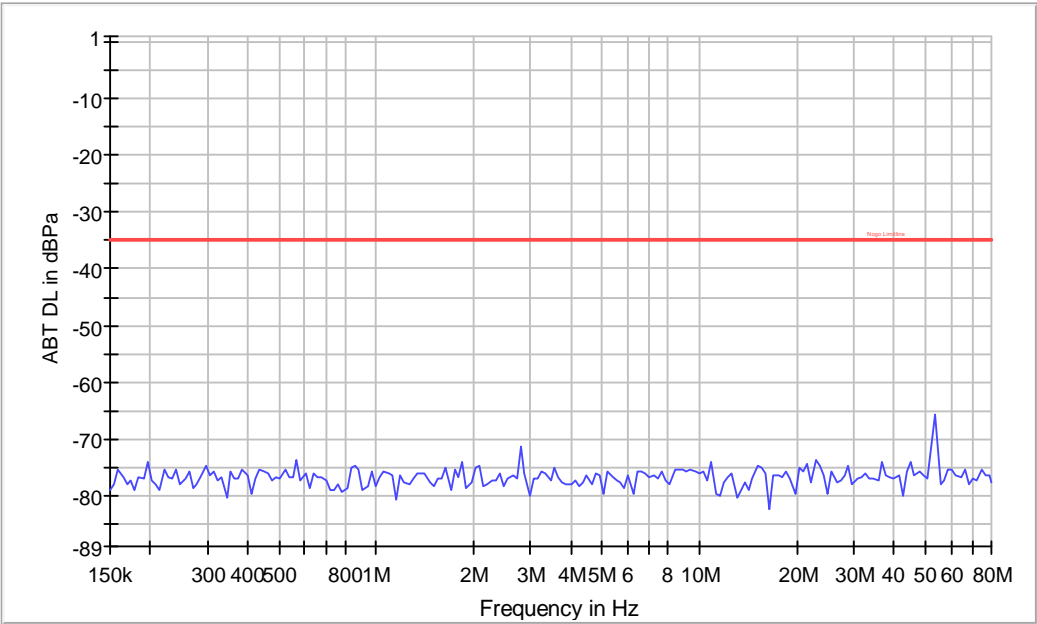
Test Description:POWER

Operating Conditions:DL

Operator Name:Eric

Comment:

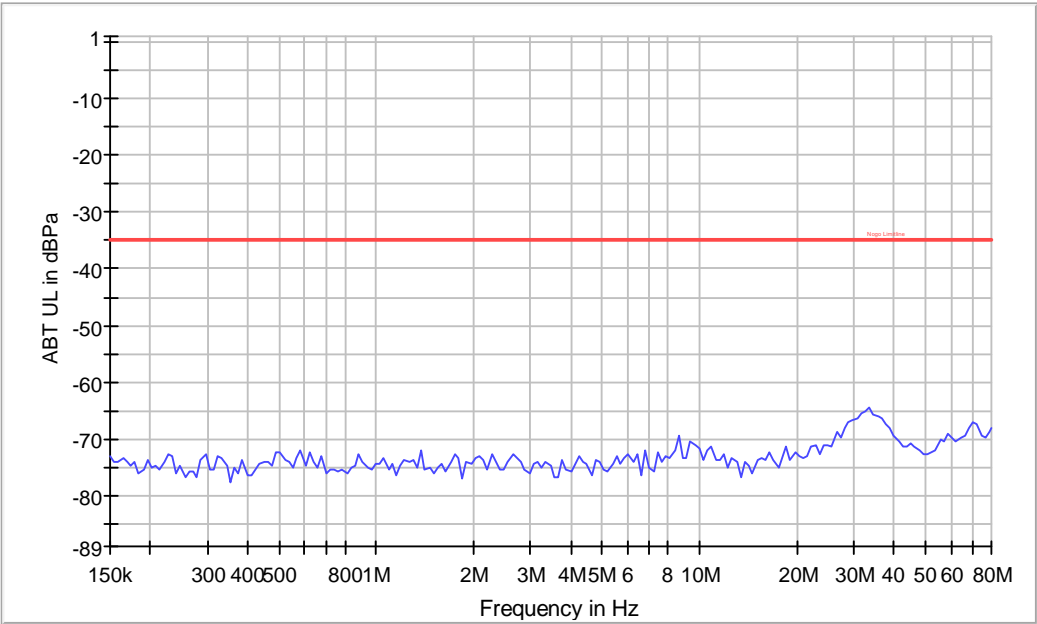
ABT DL



Common Information

| | |
|-----------------------|-------|
| Test Description: | POWER |
| Operating Conditions: | UL |
| Operator Name: | Eric |
| Comment: | |

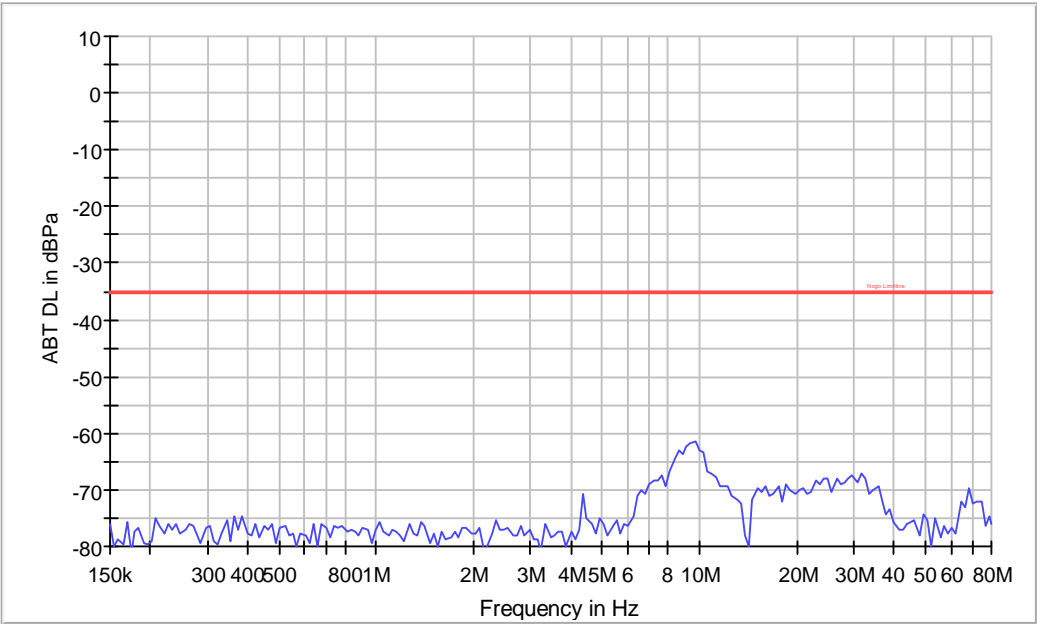
ABT UL



Common Information

| | |
|-----------------------|------|
| Test Description: | TEL |
| Operating Conditions: | DL |
| Operator Name: | Eric |
| Comment: | |

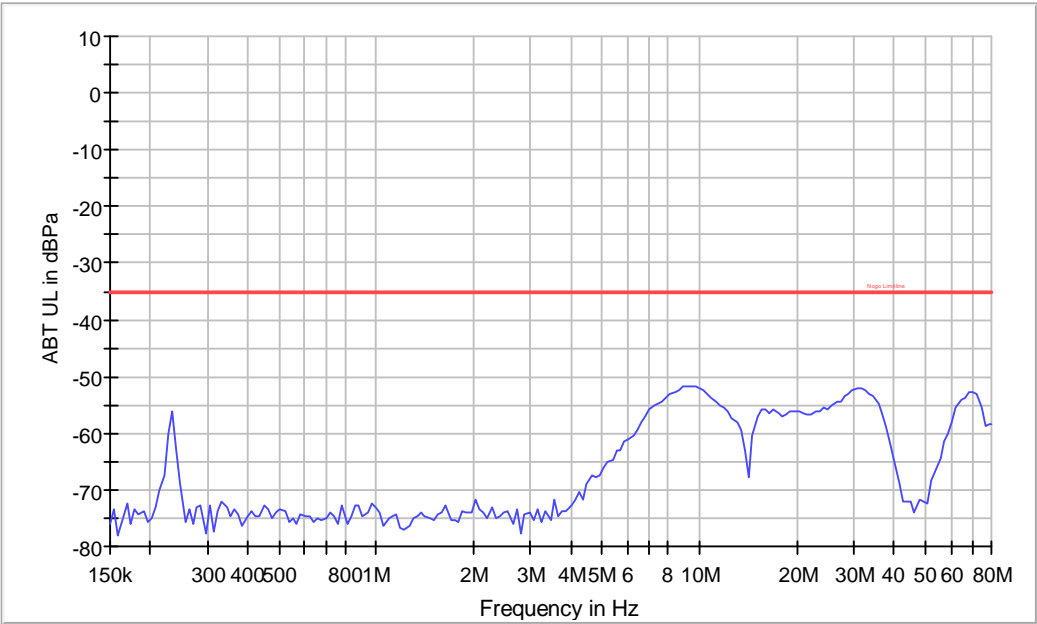
ABT DL



Common Information

| | |
|-----------------------|------|
| Test Description: | TEL |
| Operating Conditions: | UL |
| Operator Name: | Eric |
| Comment: | |

ABT UL



4.2.6 Voltage Dips and Interruptions:**4.2.6.1 Voltage Dips and Interruptions Test Data:****A. Operating Conditions of the EUT: Talking Mode**

Test Date: Aug. 12, 2009

| | | | |
|--|-----------------------------------|------------------|-------------------------|
| Test Specification | EN 61000-4-11:2004 | | |
| Test Equipment | | Calibration Date | Recommended Recal. Date |
| Power Analysis System\California Instruments\ MX45-3PI-413 (PACS-3) | | Oct. 02, 2008 | Oct. 01, 2009 |
| Climatic Condition | Ambient Temperature: <u>23°</u> C | | |

| Test mode | Voltage dips | Durations (ms) | Interval (s) | Times | Phase | Result |
|----------------------------------|--------------|----------------|--------------|-------|----------------------|--------|
| Voltage interruptions | 100% | 5000 | 10 | 12 | 0° / 180° | C |
| Voltage dips in % U _T | 100% | 10 | 10 | 12 | 0° ~360° Step 45° | A |
| | 100% | 20 | 10 | 12 | 0° ~360° Step 45° | A |
| | 30% | 500 | 10 | 12 | 0° ~360° Step 45° | A |

Note: “A ” means the EUT operates with ☒ no user noticeable loss of the communication Link.
☒ no loss of user control functions or stored data.
☒ no unintentional transmission.

“ C ” means the EUT function was not correct during the test, which was recovered by operator after test.

4.2.6.2 Voltage Dips and Interruptions Test Setup Photos:



1. Outside view 1 of EUT (Adaptor)



2. Outside view 2 of EUT (Adaptor)

